FHWA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.	SEE TITLE SHEET		

Intersection Operation

This intersection is to operate in a NEMA six-phase, semi-traffic-actuated mode. There will be exclusive/permissive left turns for both the north and southbound movements of MD 355. The through movements for MD 355 will operate concurrently. The Gunners Brand Road/Fox Chapel Shopping Center movements will operate concurrently.

An eight phase, full-traffic-actuated, solid state digital controller with six two-channel time delay output loop detector amplifiers housed in a base mounted cabinet are to be installed at this location.

Construction Details

A. Install base mounted cabinet/controller with all necessary equipment (Note: two 4 in., 90-degree (Schedule 40) PVC bends, one 3 in., 90-degree (Schedule 40) PVC bend, and one 2 in., 90-degree (Schedule 80) PVC bend).

B. Install 12 in. x 30 ft. steel strain pole with 20 ft. luminaire arm, 250 watt HPS luminaire, and all necessary equipment for an overhead type B-14 electrical service (Note: two 3 in., 90-degree (Schedule 40) PVC bends, and one 2 in., 90-degree (Schedule 80) PVC bend). [Use four 1-3/4 in. x 90 in. anchor bolts.]

C. Install 12 in. x 30 ft. steel strain pole with 20 ft. luminaire arm and 250 watt luminaire (Note: one 2 in., 90-degree (Schedule 40) PVC bend). [Use four 1-3/4 in. x 90 in. anchor bolts.]

D. Install handhole.

E. Install 1 in. liquid tight, non-metallic conduit for loop detector sleeve.

F. Install 2 in. polyvinyl chloride (Schedule 40) electrical conduit – trenched.

G. Install 2 in. polyvinyl chloride (Schedule 80) electrical conduit – trenched.

H. Install 3 in. polyvinyl chloride (Schedule 40) electrical conduit – trenched.

J. Install 4 in. polyvinyl chloride (Schedule 40) electrical conduit – trenched.

K. Install 6 ft. x 30 ft. quadrupole type vehicle loop detector (2-4-2 turns).

L. Install 3/8 in. steel span wire, 1/4 in. tether wire, vehicle signal head, and sign as shown.

M. Install 3/8 in. steel span wire, 1/4 in. tether wire, vehicle signal heads, and sign as shown (Note: Provide approximately 50 ft. of additional electrical cable for each signal head for use during roadway construction phasing).

N. Install 3/8 in. steel span wire, 1/4 in. tether wire, vehicle signal heads (polycarbonate), and sign as shown (Note: Provide approximately 50 ft. of additional electrical cable for each signal head for use during roadway construction phasing).

O. Install 24 in. preformed white pavement marking for stop line.

P. Remove existing handhole.

Q. Cap and abandon existing conduit.

R. Remove existing steel pole and all attached equipment.

S. Remove existing span wire and all attached equipment.

T. Remove existing electrical service.

U. Install 1 in. galvanized steel conduit for loop detector sleeve.

Equipment List "A"

Equipment to be supplied by the SHA.

Quantity	Unit	Description
1	Each	Eight phase, full-traffic-actuated, solid state digital controller with LAU panel (to be used in a NEMA six phase semi-traffic-actuated mode) housed in a base mounted cabinet.
6	EA	Two-channel time delay output vehicle loop detector amplifier and harness.
1	EA	8 in., one-way, three section (R,Y,G) adjustable traffic signal head – span wire mount.
1	EA	8 in./12 in., one-way, five section (8 in. R,Y,G/12 in. YA,GA) adjustable traffic signal head – span wire mount.
1	EA	12 in., one-way, three section (R,Y,G) adjustable traffic signal head – span wire mount.
1	EA	12 in., one-way, five section (R,Y,YA,G,GA) adjustable traffic signal head – span wire mount.
5	EA	12 in., one-way, three section (R,Y,G) polycarbonate adjustable traffic signal head – span wire mount.
1	EA	12 in., one-way, five section (R,Y,YA,G,GA) polycarbonate adjustable traffic signal head – span wire mount.
28.5	SF	Sheet aluminum signing [To consist of two 36 in. x 42 in. R10-12, and one 30 in. x 36 in. R3-5(L) signs for span wire mounting].

Equipment List "B"

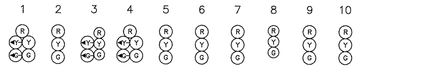
Equipment to be furnished and/or installed by the Contractor.

Quantity	Unit	Description
4	CY	Test pit excavation.
115	LF	24 in. preformed white pavement marking for stop line.
3	EA	30 ft steel strain pole.
3	EA	Handhole.
700	LF	Sawcut for signal loop detector.
1825	LF	Loop detector wire (No. 14 A.W.G.) encased in flexible tubing.
850	LF	2-conductor (aluminum shielded) electrical cable (No. 14 A.W.G.).
500	LF	2-conductor electrical tray cable (No. 12 A.W.G.).
645	LF	5-conductor electrical cable (No. 14 A.W.G.).
800	LF	7-conductor electrical cable (No. 14 A.W.G.).
50	LF	Bare copper ground wire (No. 6 A.W.G.)
90	LF	3-wire electrical cable (No. 4 A.W.G.) for electrical services.
375	LF	1/4 in. tether wire.
375	LF	3/8 in. steel span wire.
30	LF	1 in. galvanized steel conduit for loop detector sleeve.
40	LF	1 in. liquid tight, flexible, non-metallic conduit for loop detector sleeve.
20	LF	2 in. polyvinyl chloride (Schedule 40) electrical conduit – trenched.
25	LF	2 in. polyvinyl chloride (Schedule 80) electrical conduit – trenched.
40	LF	3 in. polyvinyl chloride (Schedule 40) electrical conduit – trenched.
20	LF	4 in. polyvinyl chloride (Schedule 40) electrical conduit – trenched.
11	CY	Concrete foundation for signal equipment.
4	EA	Ground rod – 3/4 in. diameter x 10 ft. length.
3	EA	20 ft. Luminaire arm with 250 watt HPS luminaire.
1	EA	Control and distribution equipment (120/240V, one phase, three wire system).
10	EA	Install traffic signal head – span wire mount.
28.5	SF	Install sheet aluminum signing – overhead mount.
1	EA	Install base mounted cabinet.
LS	LS	Removal of existing traffic signal equipment.

Equipment List "C"

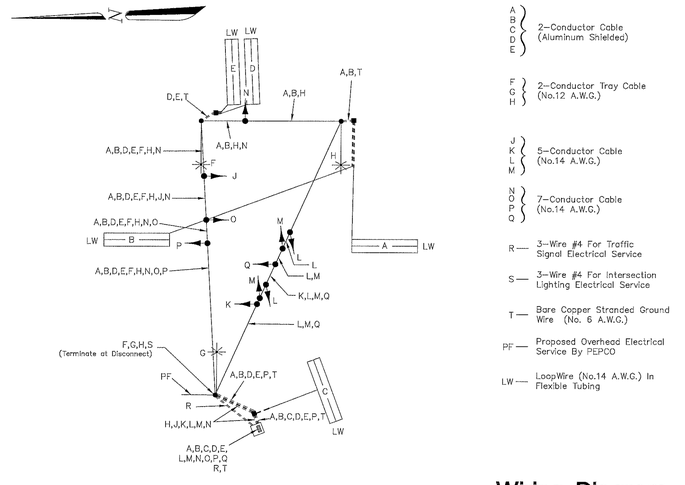
Equipment to be removed by the contractor and delivered to the MCDOT Systems Technical Center, 1283 Seven Locks Road, Building "C", Rockville MD 20852. A twenty-four (24) hour notice is required prior to delivery. Contact Mr. Emil Wolanin at (301) 217-2208.

Quantity	Unit	Description
2	EA	Steel strain pole.
8	EA	Traffic signal head.
1	EA	Pole mounted cabinet/controller.



Phase 1 & 5	R ←G—	R	R ←G—	R ←G—	R	R	R	R	R	R	
1 & 5 Change To Phase 1 & 6 or Phase 2 & 5											
Phase 1 & 6	G ←G—	G	R	R	R	R	R	R	R	R	
1 Change	G ←Y—	G	R	R	R	R	R	R	R	R	
Phase 2 & 5	R	R	G ←G—	G ←G—	G	R	R	R	R	R	
5 Change	R	R	G ←Y—	G ←Y—	G	R	R	R	R	R	
Phase 2 & 6	G	G	G	G	G	R	R	R	R	R	
2 & 6 Change	Y	Y	Y	Y	Y	R	R	R	R	R	
Phase 4 & 8	R	R	R	R	R	G	G	G	G	G	
4 & 8 Change	R	R	R	R	R	Y	Y	Y	Y	Y	
Flashing Operation	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	FL/R	

Phase Chart



Wiring Diagram

Maintenance of Traffic
Phase 1, Stage 1

Revision 'A'

A/E GROUP, INC.
CONSULTING ENGINEERS • PLANNERS
11409 CRONHILL DRIVE
OWINGS MILLS, MD. 21117
(410) 363-1908
A/E JOB NO: 94-264

REVISIONS	APPROVALS
A November 6, 1995 Rebuild to new geometrics. S.H.A. No.:M 611-501-371	CHIEF, SIGNAL DESIGN SECTION ASST. DISTRICT ENGINEER, TRAFFIC CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION DIRECTOR, OFFICE OF TRAFFIC & SAFETY

ORIGINAL ON FILE

MDOT – STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION SIGNAL # 15035517.95

DRAWN BY: N/A
DES. BY: S. Renzi
CHK. BY: N/A

MD 355 at Gunners Branch Rd/ Fox Chapel S.C.

COUNTY: MONTGOMERY

DATE: N/A
SCALE: N/A
F.A.P. NO. N/A
S.H.A. NO. N/A

TS/STD. NO. 3395A-X1-GI

SHEET NO. ____ OF ____